

## FINDING OF NO SIGNIFICANT IMPACT - REPLACEMENT OR REJUVENATION OF CATALYST FOR SELECTIVE CATALYTIC REDUCTION (SCR) OF NITROGEN OXIDES (NOX) AT SEVEN TVA FOSSIL PLANTS IN THE TENNESSEE VALLEY

To maintain the continuity of TVA Fossil Power facilities as generating assets and ensure that air emissions reductions from these plants continue to contribute to TVA system-wide targets for reduction in emissions of nitrogen oxides (NO<sub>x</sub>), TVA has prepared an Environmental Assessment (EA) in support of decisions regarding 1) whether or not to rejuvenate or replace catalyst used in the Selective Catalytic Reduction (SCR) systems at seven TVA plants (Allen, Bull Run, Colbert, Cumberland, Kingston, Paradise and Widows Creek) over the next few years; and 2) to select a method or methods for doing so, if rejuvenation or replacement is the chosen route.

In addition to the No Action Alternative, the proposed methods reviewed were: Replacement of SCR Catalyst; On-site, *In situ* Rejuvenation of SCR Catalyst; On-site, *Ex situ* Rejuvenation of SCR Catalyst and a combination alternative titled Delayed Rejuvenation of SCR Catalyst On-site, *Ex situ* and Interim Replacement with New Catalyst. The specific nature of deactivation of the SCR catalyst may vary between fossil plants, favoring one method of replacement or rejuvenation over another at any particular plant. Among the rejuvenation alternatives, determination of the appropriate cleaning, rejuvenation and/or regeneration process would be based upon economics and the particular catalyst deactivation mechanisms at the specific plant. TVA, therefore prefers to maintain the flexibility to select among the entire suite of proposed action alternatives, as economically and technologically appropriate, to address the plant-specific nature of catalyst deactivation.

The following commitments, as stated in the Summary of Commitments and Mitigation Measures in the Final EA, have been identified necessary to ensure that potential environmental impacts are insignificant and that TVA meets permit requirements for the identified fossil power plants. This FONSI is contingent upon successful implementation of these commitments and mitigation measures.

### *Commitments Which Apply to All Action Alternatives*

1. For replacement of catalyst logs, whether under the replacement alternative or in the event that damaged logs are identified during the alternatives for rejuvenation processes, due care will be taken during removal of the logs to not break or otherwise crumble the used catalyst logs and modules, and therefore, minimize the potential for fugitive dust. Logs will be placed in a lined, covered container compatible with the anticipated waste hazards.
2. While handling used catalyst, workers will wear respiratory protection to prevent inhalation of the minor, insignificant amount of dust or fines that could be generated during removal and handling. The contractor shall address specific Industrial Hygiene issues in the site Work Safety Plan.
3. Should the logs be removed for disposal, a representative sample will be taken in order to make a determination of waste characteristic (i.e., non-hazardous or

hazardous). The analysis will be conducted by TVA's Environmental Chemistry Laboratory in Chattanooga, or TVA-designated equivalent laboratory, (analyzing for TCLP Metals with the Inorganic Underlying Hazardous Constituents at non-wastewater detection levels). The results of these analyses shall be sent to Fossil Power Group (FPG)-Environmental Affairs for future determinations utilizing process knowledge.

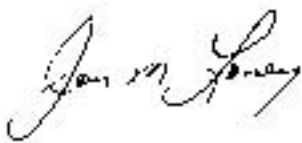
4. Preliminary testing of the spent catalyst logs show them to be non-hazardous despite the presence of minute amounts of vanadium pentoxide in the spent logs. Therefore, these logs could appropriately be disposed at a Subtitle D landfill for non-hazardous wastes. Due to the paucity of data, TVA would continue to test the spent logs, as SCRs are commissioned, to confirm the non-hazardous nature of the spent logs. Alternatively, out of an abundance of caution, the logs could be disposed at a Subtitle C landfill for hazardous wastes.
5. Should TVA be a co-generator or generator of hazardous waste associated with the replacement of catalyst (whether under the replacement alternative or ancillary to the rejuvenation alternatives), a qualified hazardous waste disposal facility that is on TVA's Environmental Restricted Awards List (ERAL) at the time of the project will be used for the ultimate disposal.

*Commitments Which Apply To On-site, In Situ (C) and On-site Ex-Situ (D) Rejuvenation and Delayed Rejuvenation of SCR Catalyst On-site, Ex Situ and Interim Replacement with New Catalyst (E) Alternatives*

6. The vacuuming of dust from the catalyst will be done with equipment equipped with bagfilters to prevent the discharge of dust particles during this activity.
7. Vacuumed ash will either be disposed of onsite through the existing ash handling system or offsite as a special waste going to an approved Subtitle D landfill.
8. At the time and point of generation (common tank), the waste from acid washes will be tested for RCRA metals and a pH measurement taken (for corrosivity) prior to deciding how to handle the waste. Waste handling will depend upon the outcome of that test at the time of waste generation. Results of these tests will be maintained in a TVA data base maintained by the staff of Environmental Affairs in the FPG. This testing will be conducted through at least one cycle of catalyst replacement for each SCR, or until FPG Environmental Affairs staff have determined and documented that sufficient testing has been conducted to use process knowledge as the basis for the decisions regarding management of the acid wash wastes.
9. Should the acid wash and rinse wastes from either rejuvenation alternative exhibit corrosivity (low pH), onsite neutralization will involve collecting the waste in a tank or tank system as defined at 40 CFR 260.10, and then co-disposal or co-treatment with the fly ash, bottom ash, boiler slag or flue gas emission control wastes via hard or flexible piping to the ash pond for ultimate disposal. If the tank(s) are permanently fixed, the transfer piping will need to be rigid and meet all engineering and BMP (Best Management Practices) for a particular location.

10. TVA will buffer the common acid wash and rinse solution to a high enough pH so as to ensure that requirements for managing the ash pond under the NPDES program are met. Low pH wastewater created from the on-site rejuvenation process will be adjusted at the point of generation to a pH value of greater than 2.0, most typically in the range of 4.0-6.0 depending on site characteristics and the ash pond conditions (e.g., the existing wastewater pH) of the particular plant.
11. Neutralized waste will be routed to any waste disposal route that is subject to NPDES or CWA standards (e.g. the ash ponds) via flexible or hard piping to existing conveyances such as the ash sluice lines or the station sumps.
12. Should the waste exceed RCRA characteristic limits for metals or any other parameter, off-site treatment will be required, whereby the waste would be collected in a tanker truck for transportation to an offsite Environmental Restricted Awards List (ERAL)-listed Treatment, Storage and Disposal Facility (TSDF) for treatment and disposal.
13. For Alternative E, the removed catalyst will be held for re-use in a stable environment (e.g., at ambient temperatures, but protected from the elements.) In the event that additional holding facilities for the temporary protection of catalyst modules are needed for Alternative E, prior to TVA taking action, subsequent environmental review under NEPA will be required for identifying and evaluating any such proposed structures.

The National Environmental Policy Act (NEPA) Administration staff, with the support of technical and business unit staffs, have prepared the subject EA; and have determined that the potential environmental consequences of TVA's actions and mitigation measures have been addressed, and that the none of the proposed methods for replacing or rejuvenating SCR catalyst at the seven identified fossil power plants are major federal actions significantly affecting the quality of the environment. Accordingly, an Environmental Impact Statement is not required.



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Date